System Requirements Documentation

Library Management System

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1. Introduction

The Library Management System is designed to help users and librarians efficiently manage book availability, borrowing, and returns. It allows users to search for books, borrow and return them, and librarians to manage the book inventory and borrowing records.

2. Customer Problem Statement

Many libraries still rely on manual record-keeping, which makes tracking book availability, managing borrowing, and organizing returns time-consuming. As a result, books may get lost, and users may struggle to find available books efficiently. This system addresses these issues by providing a structured digital solution for library management.

3. System Requirements

- Java Development Kit
- MySQL Database Server
- JDBC Driver for MySQL

4. Functional Requirements

- Users should be able to search for available books.
- Users should be able to borrow books.
- Users should be able to return books.
- Librarians should be able to add, update, or remove books from the system.
- The system should track borrowing records.

- The system should connect to a central database for storing user and book data.

Non-Functional Requirements

- The system must be accessible via a terminal-based interface.
- Data should be stored in a MySQL database.
- The system should provide real-time updates on parking spot availability.
- The system should handle concurrent user interactions without errors.

Functional Requirement Specification

Requirement	Description
Search for Books	Users can search for books by title or author.
Borrow a Book	Users can borrow books from the library.
Return a Book	Users can return borrowed books.
Manage Books	Librarians can add, update, or remove books.
Track Borrowing Records	The system tracks and manages borrow records.

5. User Interface Specification

```
LIBRARY MANAGEMENT SYSTEM
1 - View Available Books
2 - Add a Book
3 - Borrow a Book
4 - Return a Book
5 - Exit
Choose an option: 1
Connected to MySQL LibraryDB
Fetching Available Books...
Book List:
----------------------------------
ID: 1 | Title: The Great Gatsby | Author: F. Scott Fitzgerald | Availability: Available
ID: 2 | Title: To Kill a Mockingbird | Author: Harper Lee | Availability: Available
ID: 3 | Title: 1984 | Author: George Orwell | Availability: Available
ID: 4 | Title: Harry Potter and The Goblet of Fire | Author: J.K. Rowling | Availability: Available

LIBRARY MANAGEMENT SYSTEM
1 - View Available Books
2 - Add a Book
3 - Borrow a Book
4 - Return a Book
5 - Exit
Choose an option: 2
Enter Book Title:
The Hobbit
Enter Author:
J.R.R. Tolkien
Is the book available? (true/false):
true
Connected to MySQL LibraryDB
New book added successfully.
```

```
LIBRARY MANAGEMENT SYSTEM
1 - View Available Books
2 - Add a Book
3 - Borrow a Book
4 - Return a Book
5 - Exit
Choose an option: 3
Enter User ID: 1
Enter Book ID to borrow: 4
Connected to MySQL LibraryDB
Book borrowed successfully.
Returning to menu...

LIBRARY MANAGEMENT SYSTEM
1 - View Available Books
2 - Add a Book
3 - Borrow a Book
4 - Return a Book
5 - Exit
Choose an option: 4
Enter Borrow Record ID to return book: 4
Connected to MySQL LibraryDB
Book returned successfully.
Returning to menu...
```

6. Project Plan

Phase 1: Initial Planning & Setup (Weeks 1-2)

Phase 2: Core Feature Implementation (Weeks 3-5)

Phase 3: Enhancements & Fixes (Weeks 6-7)

Phase 4: Implementation (Weeks 8-9)

Phase 5: Final Testing & Documentation (Weeks 10-11)

Phase 6: Demo & Submission (Week 12)